LORAIN

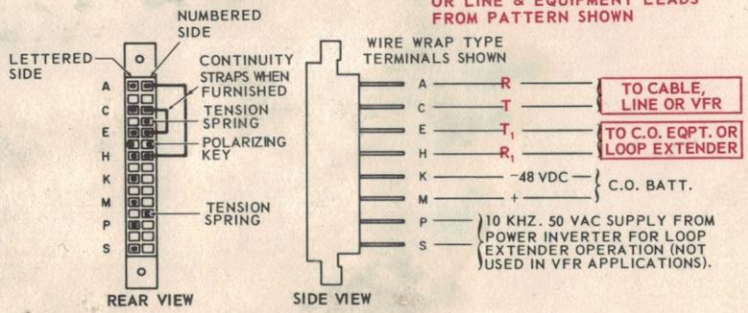
Power Equipment For Communications

INSTRUCTION MANUAL

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO
LORAIN PRODUCTS (CANADA) LTD., ST. THOMAS, ONTARIO

RECEPTACLE WIRING FOR ALL LORAIN LOOP EXTENDER AND VOICE FREQUENCY REPEATER INSTALLATIONS

IMPORTANT
DO NOT REVERSE TIP & RING
OR LINE & EQUIPMENT LEADS
FROM PATTERN SHOWN



FIRST... by Design

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO 44052

PART # 3195-030
DATE 11/15/72

3) LOOP EXTENDER AND VOICE FREQUENCY REPEATER INTERCONNECTIONS WHEN INSTALLED IN SEPARATE DEDICATED FRAMES

A) STANDARD FRAMES UTILIZING WIRE WRAP TERMINAL CONNECTIONS ON REAR OF CARD SOCKET

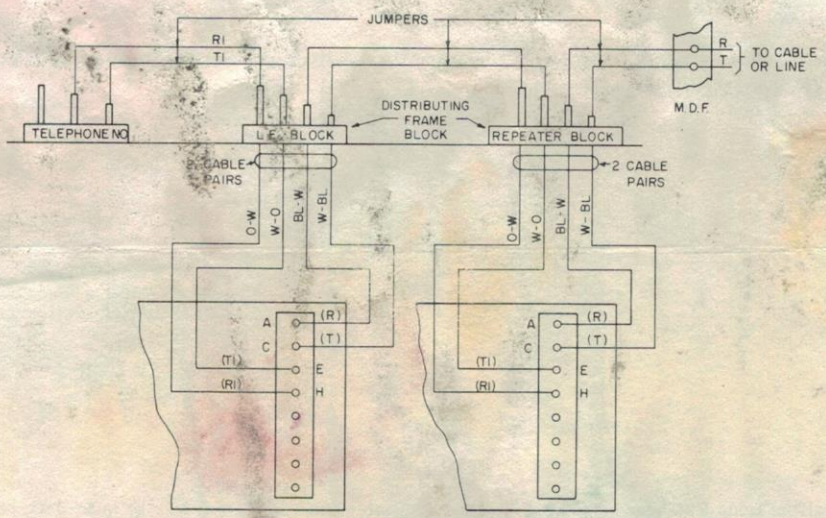


FIG. 6

B) SPECIAL FRAMES EQUIPPED WITH 10 X 10 TERMINAL BLOCKS

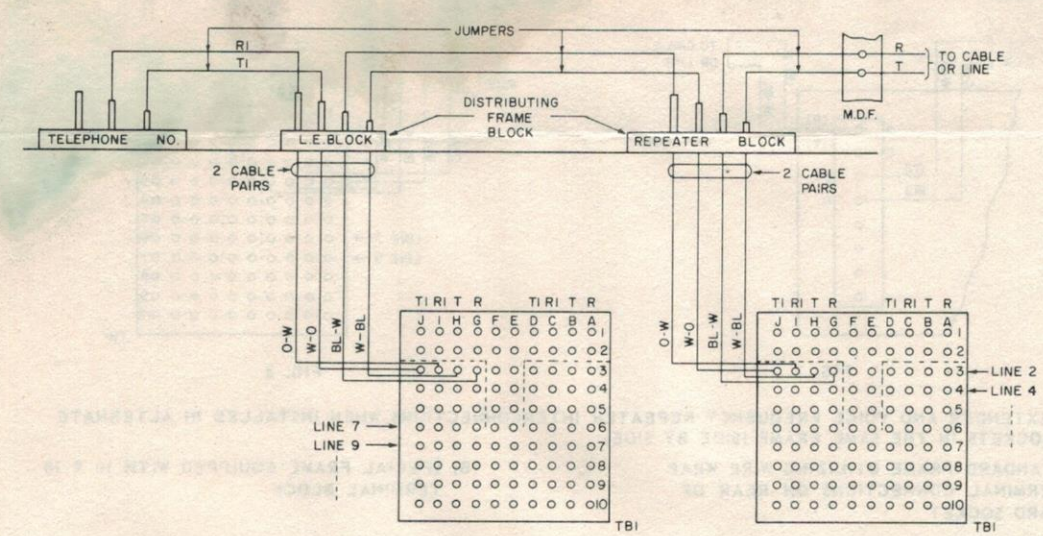


FIG. 7

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INSTALLATION OF LORAIN LOOP EXTENDER AND VOICE FREQUENCY REPEATER CARDS

General

The LORAIN Loop Extender and Voice Frequency Repeater plug-in circuit cards can be mounted in any LORAIN Power Frame (Loop Extender Basic Unit) or card frame.

Electrical Connections

Figure 1 below shows a typical card socket, detailing the electrical connections required for installing any Loop Extender card or Voice Frequency Repeater card.

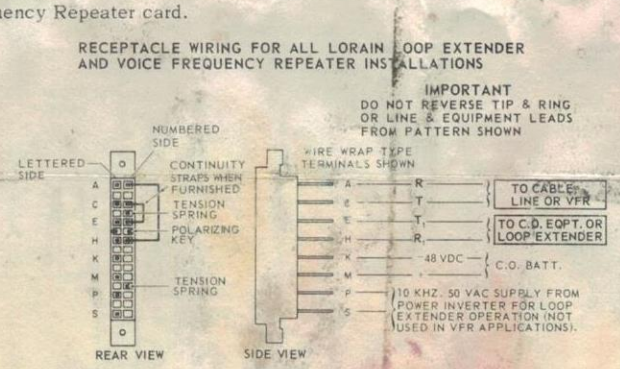

RECEPTACLE WIRING FOR ALL LORAIN LOOP EXTENDER AND VOICE FREQUENCY REPEATER INSTALLATIONS
IMPORTANT
DO NOT REVERSE TIP & RING OR LINE & EQUIPMENT LEADS FROM PATTERN SHOWN
NUMBERED SIDE
LETTERED SIDE
CONTINUITY STRAPS WHEN FURNISHED
TENSION SPRING
POLARIZING KEY
TENSION SPRING
WIRE WRAP TYPE TERMINALS SHOWN
TO CABLE OR LINE
TO C.O. EQPT. OR LOOP EXTENDER
48 VDC
C.O. BATT.
10 KHZ. 50 VAC SUPPLY FROM POWER INVERTER FOR LOOP EXTENDER OPERATION (NOT USED IN VFR APPLICATIONS).
REAR VIEW
SIDE VIEW

FIG. 1

When installing Loop Extender or Voice Frequency Repeater cards independently or in tandem, refer to the wiring diagram below, which corresponds to the type of installation desired.

1) LOOP EXTENDER OR VOICE FREQUENCY REPEATER CARDS CONNECTED INDEPENDENTLY

(A) STANDARD FRAME UTILIZING WIRE WRAP TERMINAL CONNECTIONS ON REAR OF CARD SOCKET

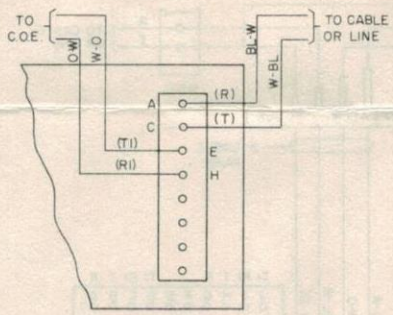


FIG. 2

(B) SPECIAL FRAME EQUIPPED WITH 10 X 10 TERMINAL BLOCK

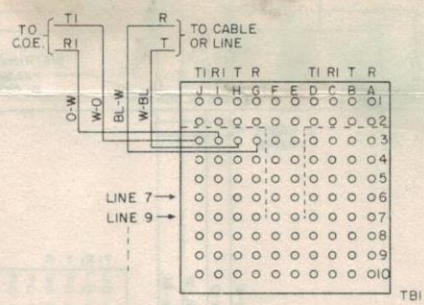


FIG. 3

2) LOOP EXTENDER AND VOICE FREQUENCY REPEATER INTERCONNECTIONS WHEN INSTALLED IN ALTERNATE CARD SOCKETS IN THE SAME FRAME (SIDE BY SIDE)

(A) STANDARD FRAME UTILIZING WIRE WRAP TERMINAL CONNECTIONS ON REAR OF CARD SOCKET

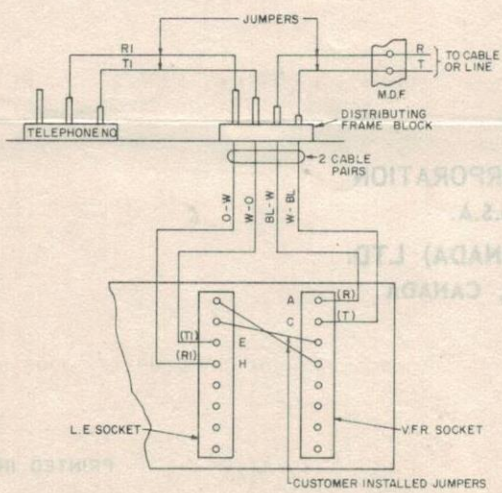


FIG. 4

(B) SPECIAL FRAME EQUIPPED WITH 10 X 10 TERMINAL BLOCK

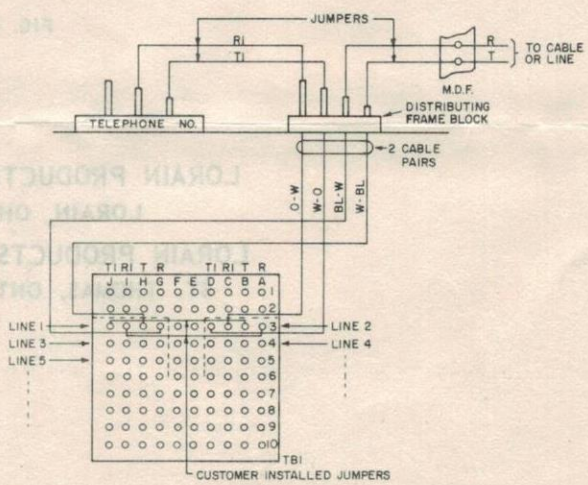


FIG. 5

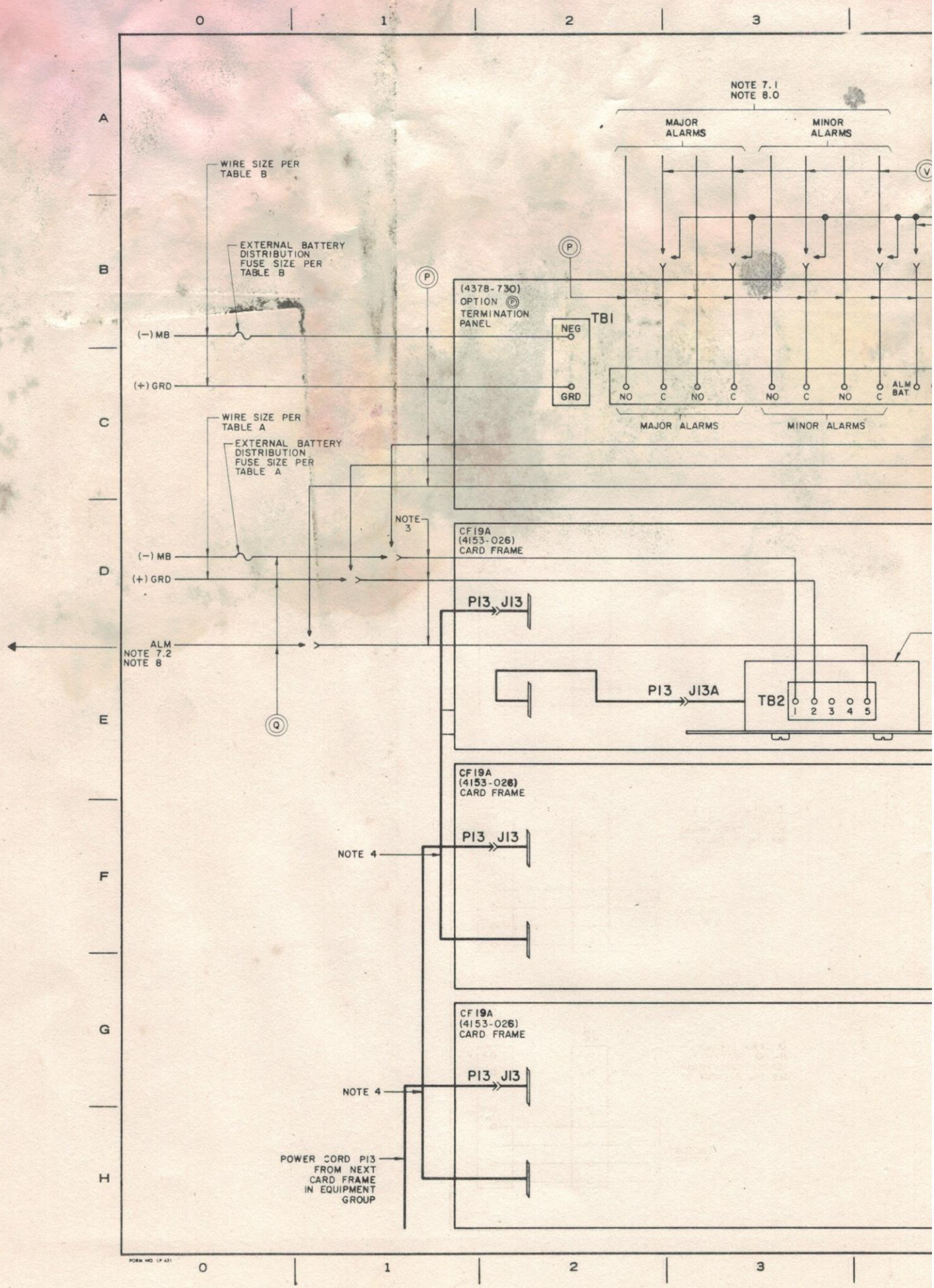
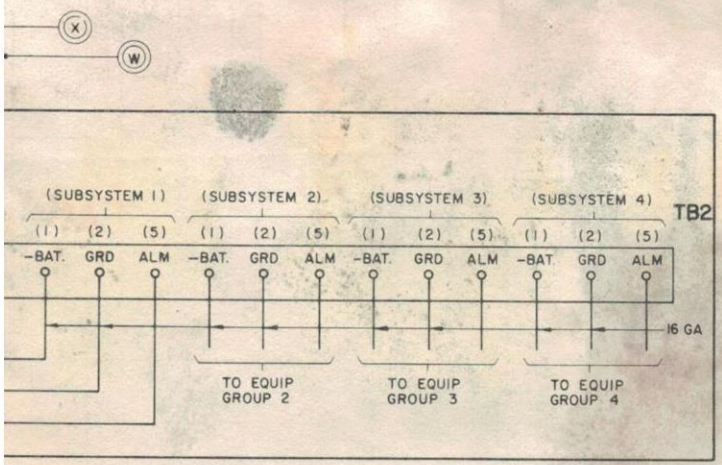
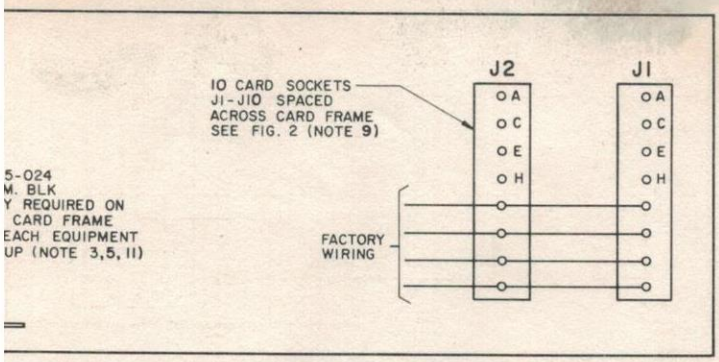
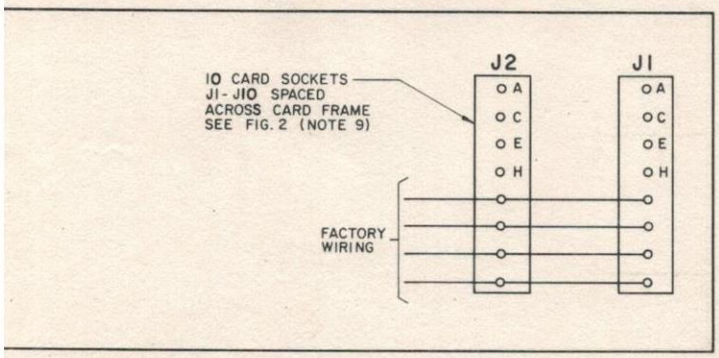
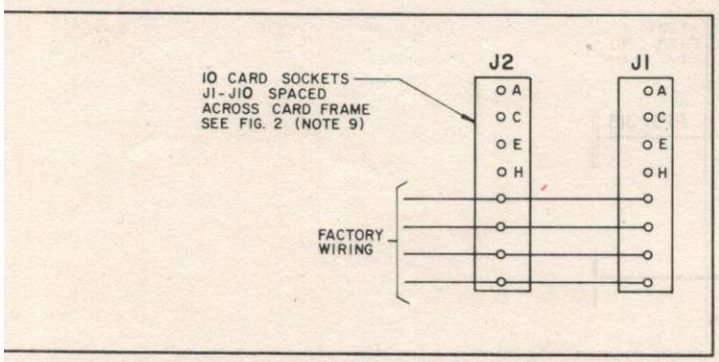

NOTE 7.1
NOTE 8.0
MAJOR ALARMS
MINOR ALARMS
WIRE SIZE PER TABLE B
EXTERNAL BATTERY DISTRIBUTION FUSE SIZE PER TABLE B
(4378-730) OPTION P TERMINATION PANEL
TB1
NEG
GRD
(−) MB
(+) GRD
NO C NO C NO C NO C
ALM BAT
MAJOR ALARMS
MINOR ALARMS
WIRE SIZE PER TABLE A
EXTERNAL BATTERY DISTRIBUTION FUSE SIZE PER TABLE A
NOTE 3
CF19A (4153-026) CARD FRAME
P13 J13
ALM NOTE 7.2 NOTE 8
P13 J13A
TB2
1 2 3 4 5
NOTE 4
POWER CORD P13 FROM NEXT CARD FRAME IN EQUIPMENT GROUP

FIG. 1
REAR OF EQUIPMENT









REVISIONS			
ISS NO	CHGD BY / CHG SCTP NO	DATE	DESCRIPTION
5	1833026 M 5		REDRAWN
	22		T walker 5-22-73
	73		
5-28-73	5-23-73		

NOTES

1. THIS POWER DATA SHEET GIVES INFORMATION FOR THE MODEL CF19A CARD FRAME WHEN USED INDEPENDENTLY OF A LORAIN MODEL PF19A POWER FRAME. IF THIS CARD FRAME IS TO BE USED WITH A POWER FRAME, REFER TO PD5673-042 FOR INSTALLER'S INFORMATION. SEE TABLE "A" OR "B" FOR LINE CARD TYPES THAT CAN FUNCTION IN A SYSTEM CONSISTING ONLY OF CARD FRAMES.
2. PROVIDE AT LEAST ONE INCH OF SPACE BETWEEN EQUIPMENT GROUPS FOR VENTILATION.
3. MOUNT A 4245-024 TERMINAL BLOCK ASSEMBLY AS SHOWN ON THE FIRST CARD FRAME IN EACH EQUIPMENT GROUP TO ACCOMMODATE INSTALLER'S POWER AND ALARM LEADS. CONNECT CORD, P13, OF THE FIRST POWER FRAME TO JACK J13A, OF THE TERMINAL BLOCK ASSEMBLY.
4. CONNECT THE POWER CORDS, P13, OF THE REMAINING CARD FRAMES IN THE EQUIPMENT GROUP AS SHOWN TO JACK J13 OF THE PRECEEDING CARD FRAME.
5. A 100 OHM RESISTOR IS PROVIDED WITH THE 4245-024 TERMINAL BLOCK ASSEMBLY TO PROTECT THE ALARM LEAD AND CARD FRAME ALARM WIRING AGAINST THE POSSIBILITY OF AN ALARM LEAD FAULT TO GROUND.
6. WIRE GAUGE IS SELECTED FOR A VOLTAGE DROP OF NOT MORE THAN 0.5 VOLTS. LOOP LENGTH IS THE SUM OF THE (+) AND (−) LEADS.
7. ALARMS
   - 7.1 WHEN USING THE TERMINATION PANEL, OPTION (D), CENTRALIZED MAJOR AND MINOR ALARM CONTACTS ARE AVAILABLE. A FUSE OPERATION IN ANY CARD FRAME CAUSES 2 SETS OF CONTACTS (DESIGNATED MINOR ALARM) TO CLOSE AT THE TERMINATION PANEL TERMINAL BLOCK, TB2. A FUSE OPERATION IN THE TERMINATION PANEL CAUSES 2 ADDITIONAL SETS OF CONTACTS (DESIGNATED MAJOR ALARM) TO CLOSE AT THE TERMINATION PANEL TERMINAL BLOCK, TB2.
   - 7.2 WHEN NOT USING THE TERMINATION PANEL, OPTION (G), A FUSE OPERATION IN ANY CARD FRAME CAUSES NEGATIVE BATTERY TO APPEAR AT THE TERMINAL MARKED "ALM" ON THE TERMINAL BLOCK, TB2.
8. RECOMMENDED ALARM WIRE SIZE: 20 GA
9. J1-J10 CARD SOCKET TERMINALS ARE 0.045 X 0.045 WIRE WRAP POSTS.
10. EQUIPMENT DIMENSIONS

    $3\frac{1}{2}$" HIGH X 19" WIDE

    THIS EQUIPMENT CAN BE MOUNTED IN 19" WIDE RELAY RACKS WITH $1\frac{3}{4}$" OR 1" MULTIPLE DRILLING. THERE WILL BE A $\frac{1}{2}$" SPACE BETWEEN EACH FRAME WHEN MOUNTED IN RACKS WITH 1" MULTIPLE DRILLING.

    THE CF19A PROTRUDES 5" IN FRONT OF AND 7" (WITH 4245-024 TERM. BLK. ASSY.) BEHIND THE MOUNTING EARS.

    THE 4378-730 TERMINATION PANEL PROTRUDES $4\frac{1}{2}$" IN FRONT OF AND $1\frac{1}{2}$" BEHIND THE MOUNTING EARS.
11. THE 4245-024 TERM. BLOCK ASSY. CAN ALSO BE USED TO AID IN INTERFACING POWER CONNECTIONS BETWEEN THIS CF19A CARD FRAME AND AN EXISTING RB4AM19 TYPE LOOP EXTENDER INSTALLATION. REFER TO THE INSTRUCTION MANUAL FOR THE RB4AM19 BASIC UNIT TO DETERMINE THE MAXIMUM NUMBER OF CARD FRAMES THE BASIC UNIT CAN POWER.

DESIGN	T. WALKER	DATE
DRAWN	S. LUBY	
CHECKED	A. MUCHA	
CHECKED	VAN DEUSEN	
APPROVED	CHAMBERS	3-5-73

ISSUE 5

181-0680

INSTALLER'S CONNECTIONS FOR MODEL CF19A CARD FRAME

WHEN USED PER NOTE 1

PD4153-026

LORAIN PRODUCTS CORPORATION

DWG SIZE D

SHEET 1 OF 2

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		TERM. BLK. WIRE GA. CAPACITY
GA	10 GA	10-18 GA.
FT	100 FT	

TABLE C

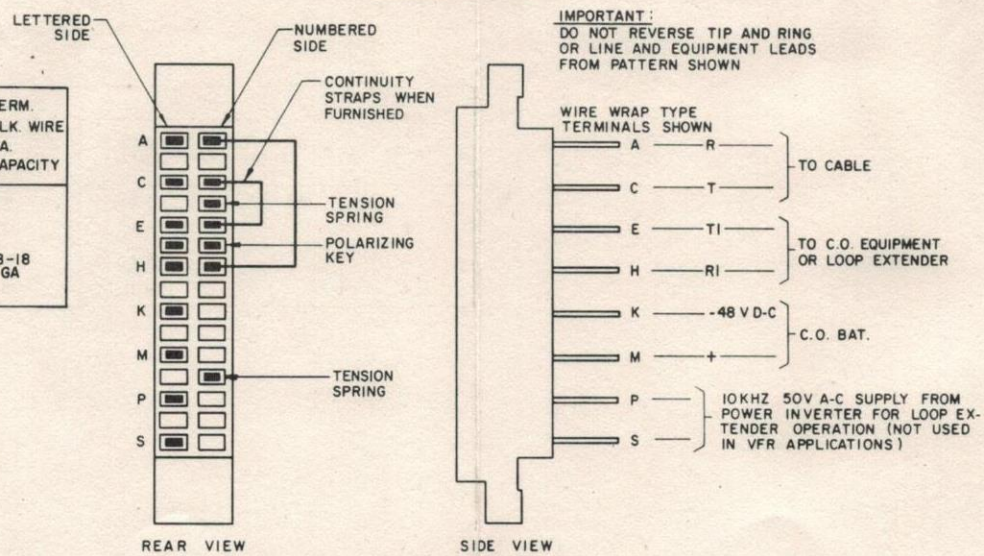
ALARM CIRCUITS AVAILABLE
WHEN USING OPTION (P)
TERMINATION PANEL

ALARM CIRCUIT DESIRED	USE OPTION
LOOP ALARM (DRY CONTACTS)	V
BATTERY ALARM (RESISTIVE)	X
GROUND ALARM	W

	IN FEET		TERM. BLK. WIRE GA. CAPACITY
GA	12 GA	10 GA	
FT	63 FT	100 FT	
FT	31 FT	50 FT	
FT	21 FT	33 FT	8-18 GA
—	16 FT	25 FT	

FIG. 2
NOTE 9

RECEPTACLE WIRING FOR ALL LORAIN VOICE FREQUENCY REPEATER INSTALLATIONS



DRAWING ISSUE
5 D-H 8-21-78

ISSUE

PD4153-026

LORAIN PRODUCTS CORPORATION DWG SIZE D

SHEET 2 OF 2

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TABLE A

INPUT TABLE FOR OPTION (Q)
(WITHOUT LORAIN TERMINATION PANEL)

TYPE OF CARD	MAX. NO. OF FRAMES IN A GROUP (PER BAT. (DIST FUSE)	D-C INPUT						
		VOLTAGE RANGE	MAX. AMPS	REC BAT. DIST FUSE SIZE, AMPS	WIRE GA FOR LOOP LENGTH IN FEET			
					18 GA	16 GA	14 GA	
VRM	12	42 - 56	4.8	5	15 FT	25 FT	39 FT	

TABLE B

INPUT TABLE FOR OPTION (P)
(WITH LORAIN TERMINAL PANEL)

TYPE OF CARD	MAX. NO. OF FRAMES IN A GROUP	NO. OF GROUPS	D-C INPUT					
			VOLTAGE RANGE	MAX. AMPS	REC BAT. DIST FUSE SIZE, AMPS	WIRE GA FOR LOOP LE		
						18 GA	16 GA	
VRM	12	1	42 - 56	4.8	8	15 FT	25 FT	
		2		9.6	12	—	12 FT	
		3		14.4	20	—	—	
		4		19.2	25	—	—	

LORAIN PRODUCTS CORPORATION WARRANTY

Lorain Products Corporation warrants that all equipment manufactured by it shall be free from defects in material and workmanship. The corporation will, at its option, replace or repair free of charge and pay surface carrier charges on any adequately packed equipment covered by its warranty which shall be returned to the factory within 90 days from date of turn-on and found to be defective. All circuit components are warranted for two years from the original shipping date from the factory and which upon examination prove to be defective in material or workmanship. The corporation recommends that all shipments of equipment be inspected by the customer for hidden damage upon receipt from the carrier to insure that a timely claim be filed, if necessary, by the customer. Lorain Products Corporation will not pay claims for shipping damages.

Systems and Equipment Not Economically Returnable To The Factory

In the event that the product involved is a system or equipment which, in the judgment of Lorain Products Corporation, is not economically returnable to the factory or if Lorain Products Corporation has performed the installation, supervised the installation, or performed testing and turn-on, circuit components and Lorain repair labor are covered by this warranty for the first 90 days from date of turn-on and circuit components are warranted for two years from the date of shipment. Upon request, Lorain will send a service technician to the site to determine if the unit is defective in circuit components or workmanship, and will repair the equipment. If the failure is Lorain's fault, no invoice for circuit components or repair labor will be issued if the complaint has been issued within the first 90 days from date of turn-on. If the complaint is issued more than 90 days from the date of turn-on but within two years from the date of shipment, the customer will be billed at the prevailing Customer Service rates but will not be billed for circuit components. If the problem occurs after two years from the date of shipment, circuit components and repair labor are billable.

If the problem has been created by misuse or abuse of the equipment or by malfunction of associated equipment or by environmental conditions, at any time after shipment, the customer will be billed for circuit components and labor.

General Provisions

Lorain Products Corporation shall not be obligated to pay any costs or charges incurred by the customer or by any other party. In no event will Lorain Products Corporation be liable for consequential damages. No waiver, alteration or modification of any of the provisions herein shall be binding on Lorain Products Corporation unless in writing and signed by an authorized official of Lorain Products Corporation. If, during any warranty period, the subject equipment has, in the opinion of Lorain Products Corporation, been modified or misrepaired, the warranty will be void unless the modifications or repairs have been made after consultation with the corporation and upon the recommendation of the corporation.

ELECTRICAL PARTS LIST
LORAIN CF19A CARD FRAME ASSEMBLY
SPEC. NO. 4153-026

This Electrical Parts List is arranged alphabetically by part name. Spare parts are not usually required if adequate standby equipment is available and if the LORAIN EQUIPMENT is installed at an accessible location so that parts can readily be obtained from Lorain Products stock. When ordering parts, please furnish equipment Model No., Spec. No., and Serial No. as given on the equipment nameplate. The quantity of spare parts listed should be sufficient for ten or less assemblies or models for at least 18 months. If a single asterisk (*) appears in the Quantity Recm. Spares column, it indicates the part, assembly, or model is listed more than once, in which case, use the quantity where the item first appears. If two asterisks (**) appear, refer to the sub-list for that assembly or model. If a dash (-) appears, this indicates that spares are not recommended for this part or assembly.

Ref. Desig.	LPC Part No.	Description	Quantity Recm. Spares
ACCESSORIES			
(Quantity of spare parts for an accessory applies only if the accessory is furnished with the equipment.)			
	4245-024	Terminal Block Assembly	**
	4378-730	19" Power/Alarm Panel Assy	**
	4873-210	Open SW Interval Assembly	1
	4873-401	VF Repeater PC Assembly	1
	4873-404	Adj Voice Repeater Assembly	1
ASSEMBLIES			
C1.1-C1.10, C2.1-C2.10	4252-010	RF Suppression Capacitor	**
DIODES			
CR2	2812-310	1N4818, Silicon	2
CR3	2812-310	1N4818, Silicon	*
CR4	2812-310	1N4818, Silicon	*
FUSES			
F3	2486-107	1.33 Amp, Alarm	5
F4	2486-107	1.33 Amp, Alarm	*
F5	2486-107	1.33 Amp, Alarm	*

ELECTRICAL PARTS LIST
LORAIN CF19A CARD FRAME ASSEMBLY
SPEC. NO. 4153-026

Ref. Desig.	LPC Part No.	Description	Quantity Recm. Spares
MISCELLANEOUS			
	2488-195	Fuseholder	1

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ELECTRICAL PARTS LIST
LORAIN TERMINAL BLOCK ASSEMBLY
SPEC. NO. 4245-024

This Electrical Parts List is arranged alphabetically by part name. Spare parts are not usually required if adequate standby equipment is available and if the LORAIN EQUIPMENT is installed at an accessible location so that parts can readily be obtained from Lorain Products stock. When ordering parts, please furnish equipment Model No., Spec. No., and Serial No. as given on the equipment nameplate. The quantity of spare parts listed should be sufficient for ten or less assemblies or models for at least 18 months. If a single asterisk (*) appears in the Quantity Recm. Spares column, it indicates the part, assembly, or model is listed more than once, in which case, use the quantity where the item first appears. If two asterisks (**) appear, refer to the sub-list for that assembly or model. If a dash (-) appears, this indicates that spares are not recommended for this part or assembly.

Ref. Desig.	LPC Part No.	Description	Quantity Recm. Spares
RESISTORS			
R1	2656-432	100 Ohm 12 Watt Fixed	1

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ELECTRICAL PARTS LIST
LORAIN 4252-010 RF SUPPRESSION CAPACITOR ASSEMBLY

This Electrical Parts List is arranged alphabetically by part name. Spare parts are not usually required if adequate standby equipment is available and if the LORAIN EQUIPMENT is installed at an accessible location so that parts can readily be obtained from Lorain Products stock. When ordering parts, please furnish equipment Model No., Spec. No., and Serial No. as given on the equipment nameplate. The quantity of spare parts listed should be sufficient for ten or less assemblies or models for at least 18 months. If a single asterisk (*) appears in the Quantity Recm. Spares column, it indicates the part, assembly, or model is listed more than once, in which case, use the quantity where the item first appears. If two asterisks (**) appear, refer to the sub-list for that assembly or model. If a dash (-) appears, this indicates that spares are not recommended for this part or assembly.

Ref. Desig.	LPC Part No.	Description	Quantity Recm. Spares
CAPACITORS			
	2724-142	0.01UF 1000 Volt DC, Ceramic	1

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ELECTRICAL PARTS LIST
19" POWER/ALARM PANEL ASSEMBLY
SPEC. NO. 4378-730

This Electrical Parts List is arranged alphabetically by part name. Spare parts are not usually required if adequate standby equipment is available and if the LORAIN EQUIPMENT is installed at an accessible location so that parts can readily be obtained from Lorain Products stock. When ordering parts, please furnish equipment Model No., Spec. No., and Serial No. as given on the equipment nameplate. The quantity of spare parts listed should be sufficient for ten or less assemblies or models for at least 18 months. If a single asterisk (*) appears in the Quantity Recm. Spares column, it indicates the part, assembly, or model is listed more than once, in which case, use the quantity where the item first appears. If two asterisks (**) appear, refer to the sub-list for that assembly or model. If a dash (-) appears, this indicates that spares are not recommended for this part or assembly.

Ref. Desig.	LPC Part No.	Description	Quantity Recm. Spares
FUSES			
F1	2486-110	5A Alarm	6
F2	2486-110	5A Alarm	*
F3	2486-110	5A Alarm	*
F4	2486-110	5A Alarm	*
INDICATOR LAMPS			
DS1	2581-213	48V Filament	1
DS2	2581-213	48V Filament	*
RELAYS			
K1	2543-797	48V DC	1
K2	2543-797	48V DC	*
RESISTORS			
R1	2656-451	600 Ohm 10W Fixed	1
R2	2656-432	100 Ohm 12W Fixed	1

ELECTRICAL PARTS LIST
19" POWER/ALARM PANEL ASSEMBLY
SPEC. NO. 4378-730

Ref. Desig.	LPC Part No.	Description	Quantity Recm. Spares
MISCELLANEOUS			
	2488-195	Fuseholder	1
	2584-113	Lampholder	1
	2584-636	Red Lens Cap	1
	2584-638	White Lens Cap	1

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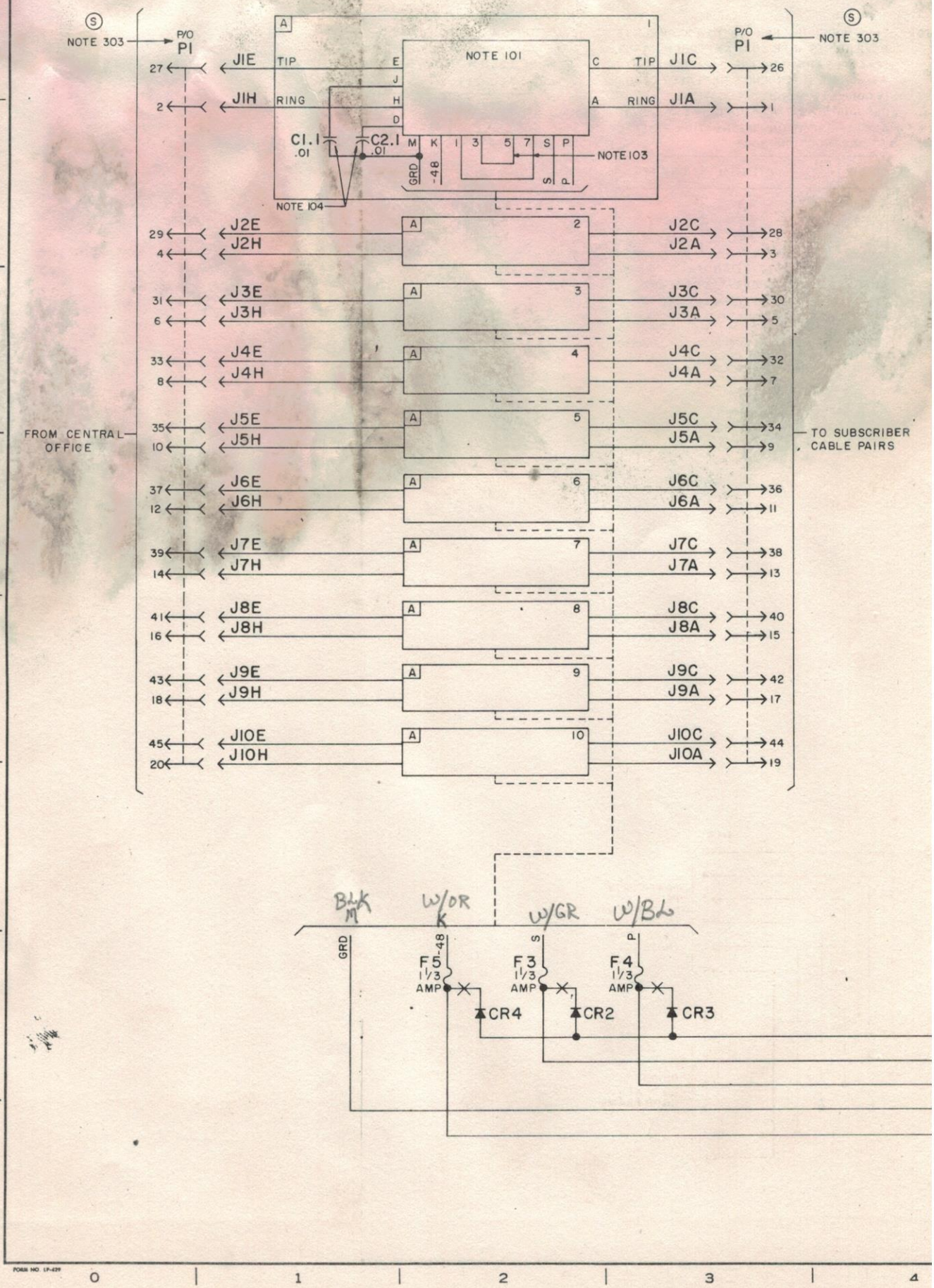
St. Thomas, Ontario, Canada

FIG. 1

LOOP EXTENDER - VFR CIRCUITS



REVISIONS			
ISS NO.	CHG'D BY CHG SLIP NO.	DATE	DESCRIPTION
5	1832462 S. Libby M22	2 73	F5 WAS 0.5 AMP R.F. SUPPRESSION ADDED AS STANDARD FEATURE. IT WAS PREVIOUSLY OPTION

R. A. Hunsche 2-22-73
J. Walker 3-1-73
C.W. Chynoweth 3-1-73

CIRCUIT NOTES.

101. THIS MODEL IS DESIGNED TO ACCOMMODATE 2 1/2 INCHES WIDE LOOP EXTENDER CARDS, (EXAMPLE SRM-169) AND 2 1/2 INCHES WIDE VOICE FREQUENCY REPEATER CARDS, (EXAMPLE VRM-401) IN LOCATIONS DESIGNATED BY "A" FOR COMPLETE LISTING AND APPLICATION INFORMATION REFER TO INSTRUCTION BOOK.

102.

DESIG	FUSE AMP	POTENTIAL	ONE PER
F3	1 1/3	48	CKT
F4	1 1/3	48	CKT
F5	1 1/3	48	CKT

103. JUMPERS FROM (1) TO (7) AND (3) TO (5) AUTOMATICALLY SHORT (A) TO (H) AND (C) TO (E) RESPECTIVELY, WHEN CARD IS REMOVED FROM SOCKET.

104 C1.1 AND C2.1 IS R.F. SUPPRESSION CAPACITOR ASSEMBLY 4252-010. ONE ASSEMBLY IS PROVIDED FOR EACH SOCKET J1 - J10.

INSTALLATION NOTES.

201. THIS AUX. CARD FRAME ASSEMBLY IS DESIGNED TO BE USED WITH POWER FRAME AS FOLLOWS.

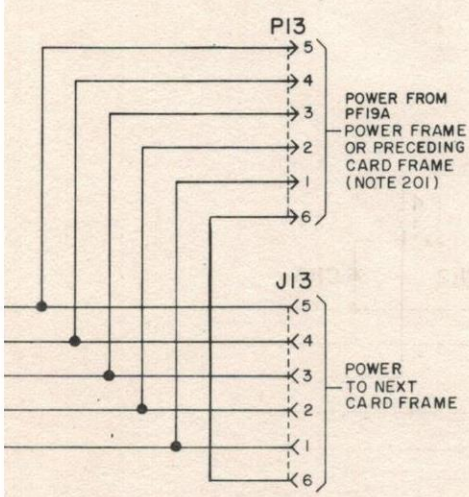
MODEL	SPEC. NO.
PF19A	5673-042

INFORMATION NOTES.

301. UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS AND VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

302. SEE WIRING DIAGRAM, T-4153-026 FOR L.P.C. PART NUMBER OF COMPONENTS.

303. SPECIFY OPTION (8) FOR 4932-121 ACCESSORY 1 FOOT 6 INCH CABLE STUB, EQUIPPED WITH 50 CONTACT "KEY TELEPHONE" TYPE MALE PLUG TO ENABLE PLUG-IN CONNECTION OF TELEPHONE CIRCUITS (CENTRAL OFFICE AND SUBSCRIBER CABLE PAIRS)



181-0680

SCHEMATIC DIAGRAM FOR MODEL CF19A CARD FRAME FOR USE WITH MODEL PF19A POWER FRAME

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO
LORAIN PRODUCTS (CANADA) LTD., ST. THOMAS, ONTARIO

DWG SIZE D

DESIGN T. WALKER ISS. 5
DRAWN BY L. Dienes DATE 11-5-71
CHECKED BY R.D. Young DATE 11-9-71
APPROVED BY J. Walker DATE 11-9-71
APPROVED BY R.A. Hunsche DATE 11-9-71
RATING

SD-4153-026

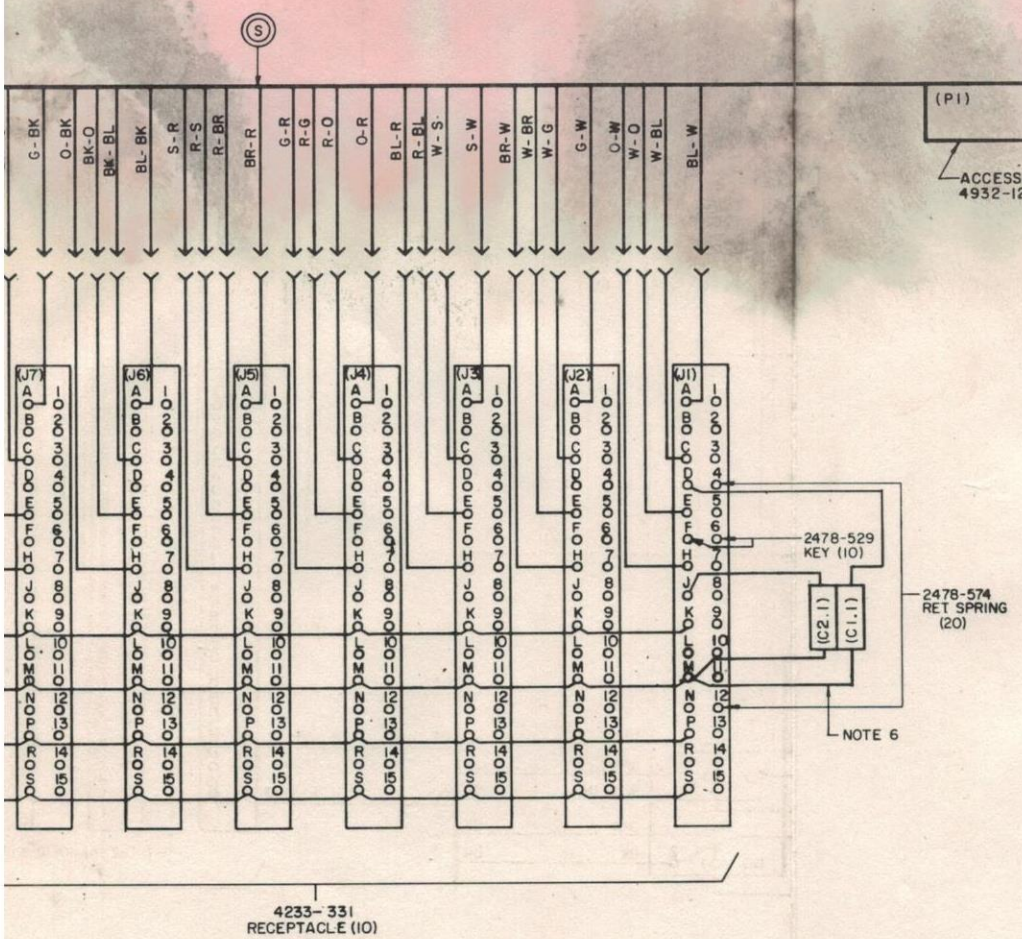
SHEET 1 OF 1

| SD-DRAWING ISSUES AND T-DRAWING ISSUES AS FOLLOWS | | |

MANUFACTURING NOTES:

1. ALL WIRES SHALL BE 20 GA STRANDED UNLESS OTHERWISE SPECIFIED.
2. D – INDICATES LEAD IS A JUMPER.
3. DO NOT USE THIS PRINT FOR INSTALLATION.
4. HI-WIRES RUN THROUGH CORRESPONDING DESIGNATED HOLE.
5. TIE EXTRA LEADS BACK TO HARNESS.
6. C1.1, C2.1 IS FOR R.F SUPPRESSION, ONE CAPACITOR ASSEMBLY 4252-010 REQUIRED PER LOOP EXTENDER SOCKET TO BE CONNECTED AS SHOWN AT END SOCKET.

2	1831510	3 6 72	F5 WAS 1 1/3 AMP P1 WIRE COLORS CORRECTED
3	1832120	8 17 72	4233-331 WAS 4233-323
4	1832072	9 28 72	MODEL NO. ASSIGNED. OPTION "N" AND "S" ADDED.
5	1832462	2 15 73	F5 WAS 0.5 AMP RF SUPPRESSION ADDED AS STANDARD FEATURE
6	1833086	9 24 73	CHGD WIRE COLORS AT J13 FROM CORD 4216-044



RAIL COMPONENT INFORMATION			
G	LPC PART NO.	VALUE	LOC
4	2812-310		00
10 10	4252-010	.01 PER SECTION	04

EP-880

REPRO BY J.H. HORNIS DATE 10-20-71
CHECKED BY DATE 10-27-71
APPROVED BY DATE 10-28-71
APPROVED BY DATE 10-9-72
RATING

WIRING DIAGRAM FOR CARD FRAME ASSEMBLY MODEL CF19A ASSEMBLY NO. 4153-026

T-4153-026

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO

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